A Phased Approach to Promote and Form Teacher's Teaching Diagnostic Ability

Dong Yang
Center for Studies of Education and Psychology of Ethnic Minorities in Southwest China
Southwest University
2 Tiansheng Road
Chongqing 400715
China

Abstract

Classroom teaching diagnostic ability refers to teacher's ability in finding and judging both student's possible emerging problems and real problems during the teaching process, then analyze the causes of the very problems and hence make the improvement project, usually include three stages: acquaint, practice and formation. In this text, we try to discuss classroom teaching diagnostic ability in all-around manner by cutting the class into three part as pre-class, in-class and after-class; from the perspective of three dimensionalities: knowledge and skills, process and method, emotional attitude and values; and two angles like teaching situation and learning situation. We hope to make a contribution to teacher's professional development, teacher's quality improvement and teaching ability perfection.

Keywords: phased approach, diagnostic ability, professional development

Teacher's classroom teaching diagnostic ability is a concept transplanted from medical domain to education field. Permanently, educational world's cognition about it stays in its medical interpretation, which points out that teacher diagnose student's problems with the similar process used by traditional Chinese doctors, say four diagnostic methods--"look, listen, question and feel the pulse", and then make the improvement plan for the very problem. However, as the object of education, students are different from object of medical treatment, that is to say the patient, in many ways. When a patient see a doctor, basically he or she has figured out a discomfort part of the body or can express what the pain is, even a little baby can express the sickness by crying or refuse eating, in this way, it helps the doctor to diagnose the cause of disease; but this is not the case for student, student are, for the most part, not willing to confess their difficulties to teachers in detail as they cannot figure out where their own problem are. Also, teacher's perception of student is mainly about his learning outcome: failed to finish the assignment, performance declined, learning interest weakened etc. when it comes to questions like why this happens and how to deal with it, they feel frustrated, in a word, teacher cannot be as precise as medical machine in hospital, that why it's so important to equip them with teaching diagnostic ability.

## 1. What is Classroom Teaching Diagnostic Ability?

There are many definitions about classroom teaching diagnostic ability, most of which different in various emphasis on things about the diagnostic subject, the choosing of diagnostic angles and so on. For example, Dai and Li (2010) hold that teacher's diagnostic ability means teacher's ability in capture student's learning difficulties and dig out the causes for it. Once the teaching activity is diagnosed, there should be a way to fix the current teaching problems and leading teaching activities to a health direction. Early in 1976, Daniel S. Sheehan put forward a model for improving university teacher's diagnostic skills, in which he mentioned the steps of interview, data collection, strengths and weakness location, weakness diagnostic and improvement procedures implementation (Daniel S. Sheehan, 1976). Taking the classroom teaching diagnosis of mathematic as an example, Jiang Haixiao (2012) thinks that there should be four aspects in teaching diagnosis: intellectual diagnosis, methodological diagnosis, comprehensive diagnosis and the diagnosis of competence, he also summarized the main function of teaching diagnosis, say fix student's individual needs, promote the transformation of teacher's teaching style, lead teachers to think deeply and so on.

Zhang Wei (2008) put that classroom diagnostic normally refers to diagnostician's observation (the overall classroom teaching, like teachers and students' activities, performances, feelings and attitudes), listening (teacher-student communication, speeches), inquiring (teacher's teaching intention and student's inner feeling) or other methods to explore teacher's teaching experience and characteristics, thus finding out the potential problems and come up with the relevant improving measures based on rational thinking. The definitions here are different from each other in their diagnostic subjects, yet there is an emphasis on subjectivity of teaching in the present, teachers should be the diagnostic subjects themselves to make the classroom vigor and vitality. Therefore, classroom teaching diagnostic ability should be teacher's skill in finding, judging locating and fixing student's problems and difficulties before-class, in-class and after-class, ultimately, to promote student's full development, to make both teacher and student learn to autodiagnosis, in other word, it's a spontaneous and active action, teachers are the diagnostic subjects.

2. The Formation Stages of Classroom Teaching Diagnostic Ability

As a crucial part of teacher's teaching ability, teaching diagnostic skills are not accomplished in an action, but formed during teacher's long teaching career. Vygotsty points out that children's development are made up of two stages: social level and individual level (Li Qiong, 2009). We hold that this can also be applied to teaching diagnostic. As we know that in teaching diagnostic, firstly there is an input process, which is individual's assimilate and reflection, then comes the output part. What's more, in medical domain, doctor's diagnostic skills is always roughly proportional to the length of his or her medical career, the clinical practice is so crucial that it directly lead to doctor's professional development, that's the same case with teacher: In the first stage, teaching expert walk into their classroom and diagnose teaching activity with them, In the next stage, teachers will learn to do classroom teaching diagnostic themselves and in the final stage, they will be proficient enough to do it.

Table 1: Shows the Formation Procedure of Teacher's teaching Diagnostic Ability
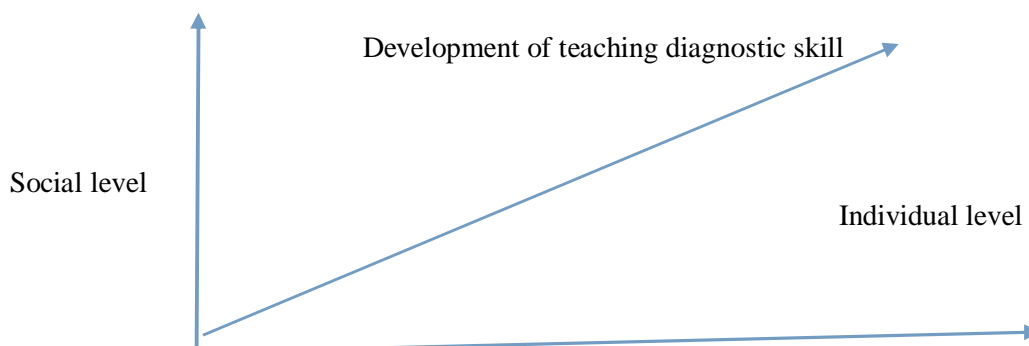
The X-axis in the graph above stands for teacher's diagnostic skills in individual level, while the Y-axis refers to that skill in social level, the slash between those two axis means teacher's diagnostic ability progress. We can see it clearly that the formation of teacher's diagnostic ability is the joint force result of both social and individual diagnoses practice, in which three stages are included:

(1) Understanding the classroom diagnostic skills

Teachers in the first stage are mostly the novice teachers, their cognition of teaching diagnostic skills are deficient, have no idea about what is and how to do a classroom teaching diagnosis. For teachers like this, some scholars suggest that we should diagnose teaching from "Wang", which means observation; "Wen", usually refers to listening and inquiring; and "Ce", stands for investigation of classroom teaching (Du Shuangxi, 2012; Shi, 2007).

Besides, various Supports from social level is needed in this stage, such as invite college professors to attend a lecture, to review lessons and do teaching diagnostic; organize a specialist diagnostic group within school: gather those excellent backbone teachers, retired aged teachers and special-class teachers together, to attend, listen, evaluate, diagnose and discuss classroom teaching at a regular intervals; teachers of every grade and subject should also establish their own diagnose group, combine sophisticated teachers' teaching experience and the educational idea of novice teachers, thus providing practical and theoretical guide for classroom teaching; lead teachers to do action research: set up a school level research project for teaching diagnosis, make the puzzles happened in daily teaching diagnostic a research project, inspire teachers solve them in real teaching… through those assist in social aspect, we can offer enough guidance in helping them to get to know and participate in classroom teaching diagnosis and form a multi-subject based teaching diagnosis skill construction(Qu Liangde, 2009).

(2) Reaching a balance—to practice the diagnostic ability in classroom teaching

After the first stage, teacher's basic cognition of teaching diagnostic skills is formed, besides, with the help of multi-subjects in social level, teachers start to obtain a clear idea of what is a diagnostic skill and how to do it in teaching. Therefore, teachers in the second stage are not entirely in a passive position, but to conduct their own diagnostic activities according to what learned in the previous period. In this moment, outside forces will not push teachers that hard, but merely give guidance; teachers usually conduct diagnosis from three aspects like before-class, in –class and after-class, once a hand is needed, they will ask outside forces for help, they discuss countermeasures together. In short, at this stage, teachers and the outside forces reached a balance.

（3）The formation of classroom teaching diagnostic skills

In phase three, teachers' classroom teaching diagnostic skills is basically formed, as a scaffold, the external forces can be moved, teachers become the real subjects of diagnosis and regard it an indivisible part of teaching activity. What is more, they are sophisticated enough to transform every confusion and puzzle into research unit and do the action research. In this way, both the ability of diagnostic and research are promoted during the process.

3. The Content of Classroom Teaching Diagnostic Skills

The formation stages of classroom teaching diagnostic skills teachers learned are just a framework, only by grasping the content can we undertaking the real teaching diagnosis.

The ultimate aim of education is to promote student's development; it is no exception for classroom teaching diagnosis. The three-dimensional proposes mentioned in the new curriculum reform, say knowledge and skills, process and method, emotional attitude and values, is both the teaching object and learning target, additionally, it's essential part in fostering a all-round development student. Since it is required to find, analyze and address students' puzzles and problems in leaning, it will be significant to diagnose classroom teaching by using that three-dimensional analyze method, as they almost covered all the possible problem aspects during student's learning. Students, in a broader sense, are social people with multi-identities and complicities, for some of them, the difficulties in learning are happened in classroom, while the real causes are outside the classroom, it's not enough to diagnose student's problems in-classroom, thus teachers should analyze them in a much boarder sense, which is before class, in class and after class. To sum up, that is three aspects: before class, in class and after class; three dimensionalities: knowledge and skills, process and method, emotional attitude and values; and two angles of view: situation of teaching and conditions of learning.

3.1 Teaching Diagnosis before Class

3.1.1 Knowledge and Skills

A. Teacher's situation of teaching. Teachers are generally regarded as the leading role in teaching, their own situation of teaching have great influence on instructional objectives, that's why it's essential to diagnose teacher's teaching situation.

To diagnose teaching situation, we should start from the teaching organization, mainly are instructional objectives: if the goal setting is based on student's characteristic traits and teaching content, if it is hierarchical and comprehensive; the content of courses: if the content is scientific and rigorous, full of logicality and weather it is inline with the instructional objectives and the key and difficult points are evident enough, the knowledge delivery process is of scientific and educational significance; teaching methods: to find out if the instructional methods teachers adopt are agree with the content of courses, instructional objectives and students' current ability, weather it can promote student's critical reasoning and thinking or inspire their thirst for knowledge or not, and finally, if the teaching methods are comply with student's cognition stage, can lead the student's learning step by step and cooperate with modern educational technology in a proper way, thus integrate the classroom teaching into a intact scientific teaching system; teaching result: to diagnose if teachers have finished the instructional task, reached the expect instructional objectives and to learn the outcomes of study(Dai Tianzhen, Li Rumi, 2010).

B. Learning conditions of students. In this aspect, the purpose is to know student's readiness to learn. As a vital subject in teaching process, it's essential to diagnose students; a teaching activity with out pertinence is like a boat without rudder. A diagnosis before class can help understanding student's learning conditions, thus teachers can suit the remedy to the right case. In the diagnosis of learning conditions, things like learning habit, learning interest, learning style, characteristic of thought, learning group and examination performance are included.

Family offered a vital microenvironment for student's growth and made a significant impact on student's wellbeing, as a result, it is necessary to conduct diagnosis on family education, additionally, family education are emphasized in the Third Plenary Session of the 18th CPC Central Committee and an import aspect in educational reform, in which points out the importance of family education and the compelling obligation family bear for the healthy growth of students. For the diagnosis of family education, aspects like parents' education level, family involvement in student's learning, family's approach in teaching student, recreational activities and educational interference from grandparents, etc should be focused.

3.1.2 Process and Method

The new round of curriculum reform put a strong emphasis on learning process and method, mainly about change the old model of too much focus on the grasp of knowledge, while ignored the proper way to gain knowledge. Teachers tend to spare no effort to promote student the rote learning, as a result, the process and method are always ignored in this great exam orientated background. In this model, what they learned is inert knowledge with limited function.

A. Teaching method.

For the teaching method diagnosis before class, teachers usually reflect their teaching methods according students' academic records, or look back their classroom teaching video, recording, especially key and difficult points or that hard-to-learn content, watch and listen those materials repeatedly and do selective analysis meanwhile. In addition, the diagnosis should also cover the aspects like content of teaching, teaching method, students' cognition traits, etc.

B. Learning method.

During the learning process, method and process is a recessive acquisition, only by making it explicit can we diagnose it properly. In this way, observation of student is the best way for diagnosis without a doubt, by observing how they study and by collecting their leaning works can teachers analyze how students are learning, besides, teachers can also create growth record bags for the propose of collecting their home works and activity records, then analyze those materials one by one. Also, teachers can do diagnosis by using the traditional way-keep a diary. Teachers herein need to feel about the right way to display the teaching results and diagnose instructional methods accordingly.

The modern research shows that, emotion, as a significant constitute part of one's psychical life, has a multi-dimensional and all-around impact on human, in other words, not only affecting one's impetus and positivity, but also one's interpersonal exchange, communication and the occurrence and development of one's relationship. The impact of emotion is of duality-may be positive under certain conditions whilst be destructive and passive sometimes (Zhao Yuying, 2006). Therefore, it's essential to diagnose instructional emotion and learning emotion.

Firstly, instructional emotions. Teachers tend to have the greatest impact on students; their every movement may bring deep impact on them to some extent. If the acquisition of knowledge or behavior is joined with positive emotion and correct value, there will be far-reaching impact. Therefore, before step into the classroom, a self emotion diagnosis is needed for teacher, such as: weather I hold expectation on a few number of students or not? If I have diverse expectations on different students or have I ready to copy with the emergencies in classroom; did I bring the passive attitude into classroom? And so on.

Secondly, learning emotions. Personal emotion is elusive and hard to detect, thus teachers need to be careful, patient and earnest. A diagnosis of emotion ask teachers to keep students' mental state, learning enthusiasm, interpersonal relationship, family emotional conditions etc. into carefully observation and analyze if one or more factors will bring harm to students. Care for students' living and learning demands, encourage them more and study the students' attributive inclination and lead the students to the right attribution, make sure what them gained every day is self-confidence rather than feel frustrated, in this way can we guide them to a proper way of auto diagnosis.

3.2 Teaching Diagnosis in-Class

The pre-class diagnosis of knowledge and skills, process and method, attitude and value makes the in–class diagnosis much easier. Teachers can follow the same model of pre-class diagnosis in this period. Usually, classroom teaching activity is constructed and generated by the interaction between classroom subjects: students and teachers, there must be some problems and emergencies out of expectation, in this situation; teachers should be flexible and seasonable to copy with those stuffs. In addition, to make in-class diagnosis comprehensive and specific enough and without leaving out key points, it's better to suggest teachers make a recording or videotape of their classroom teaching activities and pay close attention to students' participation of learning, especially aspects like positivity, learning condition, learning enthusiasm, learning interest, etc. Shi Bozhong(2012) holds that the evaluation from students should be perfected during classroom teaching, their participation in evaluation benefit teachers' improvement of courses and promote them to reflect on what them teach regularly.

3.3 After-Class Teaching Diagnosis

In fact, the after-class teaching diagnosis is also aimed at servicing the in-class diagnosis, it's mainly about figure out the major problem students met during studying, from the aspects of knowledge and skills, process and method, attitude and value, however, it is also different from pre-class diagnosis as teachers should come up with countermeasures according students' problems. In this stage, what teachers do is not only just get a comprehend understanding, but also locate and mark the deep reason for student's problem, then design a solution together and execute it in practice, finally, apply it in classroom and check the efficiency.

4. Summary

Classroom teaching diagnostic ability is not only the external demand of teachers' professional development, but also the inter needs for their independent development; it's the only way must be passed for aged teachers' walking toward perfection and being an expert, also a effective prescription for novice teachers who want to grasp the essence of teaching quickly. The teaching diagnostic skills is a skill of constant construction with the help of outside forces, and go through with stages like acknowledgement, practice and formation, then integrate that skill into teachers' daily teaching activities. To learn to diagnose is quite a long process, it cannot be accomplished in an action, there will be constant construct and deconstruct before qualitative understanding are obtained, however, once the skills are formed, it will perfect teachers' teaching ability system as well as the development of overall quality.

References

Dai Tianzhen, Li Rumi. (2010). Classroom teaching Diagnosis: Value, content and strategies [J]. Global Education, 4, 41-42

Daniel S. Sheehan. (1976). The localization, diagnostic and monitoring functions of students ratings in a model for improving university teaching [J]. Instructional Science, 5, 77-92

Du Shuangxi. (2012). The Effective Solutions for Diagnosing Novice Teachers [J]. Journal of Teaching and Management, 3, 20-21

Han Qinglin. (2003). Promote the Transformation of Teacher Education- Construct an Open Teacher Education System [J]. Educational research, 3: 5-12

Jiang Haixiao. (2012). The Reflection and Application of Teaching Diagnosis—Explore the Effectiveness of Classroom Teaching of Mathematics. Education and Teaching Research [J], 3, 97-99

Li Qiong. (2009). The knowledge Base of Teacher's Professional Development [M]. Beijing: Beijing Normal University, 6, 43-46

Qu Liangde. (2009). Classroom diagnosis: Pursuit the High Quality of Teaching [J]. Jiangsu Educational Research, 5c, 34

Shi Bozhong. (2007). The Reflection and Practice of Diagnostic Evaluation in High School [J]. Shanghai Research on Education, 11, 21-25

Zhang Wei. (2008).Classroom Diagnosis: the Scientific Research Close to Teacher's Growth [J]. Basic Education, 11, 41-42.

Zhao Yuying. (2006). Research on Teacher's Emotion in Classroom Activity [D]. Academic Dissertation of Liaoning Normal University.